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Title:

METHOD AND SYSTEM FOR MAIL SECURITY AND TRACEABILITY

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## METHOD AND SYSTEM FOR MAIL SECURITY AND TRACEABILITY

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The present invention relates to mail processing, and in particular to a method and system for use in mail processing which provides for the security and traceability of mail. Specifically, the present invention relates to a method and system for proving an identification code on mail pieces which uniquely identifies at least the source of the mail piece, such that the mail piece can be verified, and traced back to its source when desired.

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### Background of the Invention

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The threat of bio-terrorism via the mail is a real and present danger. In the instances where a mail piece has been contaminated with any harmful substance and then processed through the mail, it is often a difficult task to attempt to identify the origin of that mail piece. Typically, such mail pieces can only be traced back, via a postmark, to the postal facility where it had been processed.

Accordingly, there is a growing need to increase the level of security associated with mail submittal. There is also a growing

need to be able to trace a mail piece back to its source. The present invention fulfills such needs.

### Brief Summary of the Invention

5           The present invention comprises a method and system for providing an identification code on mail pieces which uniquely identifies at least the source of the mail piece, such that the mail piece can be verified, and traced back to its source when desired. An identification coding device produces the  
10 identification code on the mail piece. This identification code is read during the processing of the mail pieces, and the information provided therefrom is compared to known information with respect to the submitter to verify compatibility. If the mail piece contains inconsistent information in the identification code, or if the  
15 identification code is missing, the present invention would alert the mail processor that such mail piece is suspicious and needs to be investigated further before delivery. If a contaminated mail piece having the present invention's identification code is not detected prior to delivery, then the mail piece could easily be  
20 traced to its source at a later date by reading the identification code. The identification code is preferably encrypted so that it cannot be imitated.

Accordingly, it is the principal object of the present invention to provide an increased level of security associated with mail submittal.

It is a further object of the present invention to provide a method and system for mail traceability.

It is also an object of the invention to provide a device for producing an encrypted identification code on a mail piece.

Numerous other advantages and features of the invention will become readily apparent from the detailed description of the preferred embodiment of the invention, from the claims and from the accompanying drawings in which like numerals are employed to designate like parts throughout the same.

#### Brief Description of the Drawings

A fuller understanding of the foregoing may be had by reference to the accompanying drawings wherein:

FIGURE 1 is a block diagram of the present invention.

FIGURE 2 is a block diagram an alternate embodiment of the present invention.

FIGURE 3 is a block diagram of another alternate embodiment of the present invention.

**Detailed Description of the  
Preferred Embodiments of the Present Invention**

While the invention is susceptible of embodiment in many different forms, there is shown in the drawings and will be described herein in detail preferred and alternate embodiments of the present invention. It should be understood, however, that the present disclosure is to be considered an exemplification of the principles of the invention and is not intended to limit the spirit and scope of the invention and/or claims of the embodiment illustrated.

Figure 1 illustrates generally the present invention wherein a mailer, for example a bulk or business mail producer, produces a batch of mail using mail production equipment 20, such as inserters, sorters and the like. The mail pieces produced or being produced are marked with an encrypted identification code via identification code producing equipment 30. This equipment 30 could be stand alone and set along the mail piece production transport path, or could be mounted to the mailers existing mail production equipment, so long as each mail piece passes through the equipment 30 during or after production.

The identification code can take any suitable form, but preferably is embedded within a picture or text which is marked on the mail pieces via the identification code equipment 30. This

mark could take any suitable form, for example, any digital image or text, invisible ink, a watermark, or special paper fibers. The identification code identifies at least the source of the mail piece, and preferably identifies the characteristics of each individual mail piece.

Once the mail pieces are produced and have been marked with an identification code, a mailing statement containing the relevant information pertaining to that batch of mail will be produced via mailing statement producing equipment 40. This equipment 40 will provide an identification code on the mailing statement which corresponds or matches the encrypted identification code on the mail pieces.

After completion of the batch of mail and the mailing statement, the mailer will then submit the batch of mail and the mailing statement to the postal service. Mail submitter recording equipment 50 is provided at the postal facility receiving the submitted batch of mail. This equipment 50 will use an identifying technique to record the identity of the individual who physically submits the batch of mail. For example, the mail submitter recording equipment could encompass one or more of the following: a camera, video equipment, finger printing equipment, retina scan equipment, etc. The identity of the submitter will be captured and recorded to link the mailing with the person delivering it. A

background check of this individual could then be made. This acts as a deterrent and for tracking if problem mail pieces are subsequently detected.

Once the batch of mail is submitted, the mail is sampled by running the mail through automatic verification equipment 60, such as that disclosed in U.S. Patent No. 6,311,892 issued November 6, 2001 to O'Callaghan et al., and assigned to the assignee of the present invention. The entire disclosure of U.S. Patent No. 6,311,892 is herein incorporated by reference. The verification equipment 60 includes an image capture device or scanner that reads the encrypted code on each mail piece sampled. Similarly, the mailing statement is scanned such that the identification code on the mailing statement is read or received by the verification equipment 60. Equipment 60 then determines whether the identification code on the mailing statement corresponds or matches the encrypted identification code on the mail pieces. If the identification code on any mail piece is missing or does not match that of the mailing statement, then the unmatched mail piece can be flagged as suspicious and rejected.

Referring now to Figure 2, an alternate embodiment 12 of the present invention is illustrated. As described with respect to Figure 1, a mailer uses mail production equipment 22 to produce a batch of mail. During production, identification code equipment 32

marks each mail piece with an encrypted identification code. Each mail piece is then verified using in-line verification equipment 72, such as that disclosed in co-pending U.S. Patent Application Serial No. 09/774,432 filed January 30, 2001, and assigned to the assignee of the present invention. The entire disclosure of U.S. Patent Application Serial No. 09/774,432 is herein incorporated by reference. The verification equipment 72 includes an image capture device or scanner that reads the encrypted code on each mail piece sampled.

Mailing statement producing equipment 42 then produces a mailing statement which includes an identification code corresponding to the identification code on the mail pieces. The batch of mail is next submitted along with the mailing statement to the postal service. Mail submitter recording equipment 52 records the identity of the individual submitting the batch of mail and mailing statement.

If desired, automatic verification equipment 62 can then sample the mail pieces to determine that the identification codes on the mail pieces and the mail statement match. Only a very small sample would be necessary in this embodiment since the mail pieces will already have been verified by the in-line verification equipment 72.



Referring now to Figure 3, another alternate embodiment 14 of the present invention is illustrated. In this embodiment, a mailer creates a batch of mail and submits it to the postal service. Mail submitter recording equipment 54 records the identity of the submitter. The mail is then run through identification code producing equipment 34, which marks each mail piece with a code identifying the source of the mail piece, i.e., the mailer. Information obtained or produced by the mail submitter recording equipment 54 and the identification code producing equipment 34 can be stored in an information storage device 84 for future reference.

It is to be understood that the embodiments herein described are merely illustrative of the principles of the present invention. Various modifications may be made by those skilled in the art without departing from the spirit or scope from the claims which follow. For example, it is foreseen that the present invention, and specifically, that of the alternate embodiment of Figure 3, can be applicable to not just submitted mail, but also collected mail. For example, metered mail can be collected, scanned to determine the information corresponding to the meter, and marked with an identification code.

Additionally, the present invention is useful for collected mail as well as submitted mail such as bulk or business mail, especially where someone tries to forge or reproduce a marked

identification code. For example, someone creates a fake mark on a mail piece and then deposits it in the mail for collection. The mail piece is collected and brought to a postal facility, where the present invention will scan the mail piece to read the mark. Once this mark is read, the present invention will determine or detect that the mark is forged or fake since no valid encrypted code will be found. It should be understood that it would be virtually impossible for someone to forge a valid encrypted code in such an instance. The reading of collected mail pieces having marked identification codes can take place anywhere in the postal facility, via stand alone scanning and verification equipment, or as a component of other postal processing equipment such as sorters, cancellation equipment, etc.

Accordingly, it should be understood that the present invention has application to all types of mail and all types of entities such as bulk mailers, businesses, and individuals.

It is also foreseen that individuals or businesses could securely purchase personalized envelopes having pre-printed encrypted identification codes identifying the source and each envelope, which would thus allow deposited and collected mail to be traced back to that individual or business. If lost or stolen, these envelopes could be reported as such. Then, if an unauthorized person used them, the present invention could, after

reading the identification code, detect or determine that this is  
a lost or stolen envelope and reject the same.